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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 10/613,433
Filing Date: July 03, 2003
Appellant(s): MARTINEZ ET AL.

Carmen Pili Ekstrom
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed December 28, 2009 appealing from the Office action mailed May 19, 2009.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The following are the related appeals, interferences, and judicial proceedings known to the examiner which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal:

An Appeal Brief was submitted to the Board of Patent and Interferences (BAPI) on June 19, 2006 and later considered and affirmed by the BAPI on July 15, 2008.

(3) Status of Claims

The statement of the status of claims contained in the brief is incorrect. A correct statement of the status of the claims is as follows:

This appeal involves claims 68-75.

Claims 76-77 are withdrawn from consideration as not directed to the elected invention.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is incorrect.

No amendment after final has been filed.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows: Whether or not Claims 68-75 directed to a dry resistant coaxial cable were properly rejected as being unpatentable under 35 USC 103(a) over Chan et al (Pat Num 5,486,648) in view of Goehlich (Pat Num 6,784,371) and Belli (Pat Num 6,455,769).

Appellant's brief presents arguments relating to whether or not Claims 71-72, 74, and 75 are properly rejected as being indefinite. However, these claims were objected and not rejected under 35 USC 112, second paragraph. This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP § 1002 and § 1201.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,486,648	Chan et al	1-1996
6,784,371	Goehlich	8-2004
6,455,769	Belli et al	9-2002
5,043,538	Hughey, Jr et al.	8-1991

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of

the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

A) Claims 68-75 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chan et al (Pat Num 5,486,648, herein referred to as Chan) in view of Goehlich (Pat Num 6,784,371) and Belli et al (Pat Num 6,455,769, herein referred to as Belli). Chan discloses a dry water resistant coaxial cable (Figs 1-8), which provides improved protection against the migration of water (Col 1, lines 5-16). With respect to claim 68, Chan discloses a cable (Fig 3) consisting of a metal core conductor element (1), a dielectric element (2-4) around the core conductor (1) which is based on three layers, consisting of a first layer (2) being applied to the conductor (1) as an uniform layer (Col 5, lines 17-26) and being a material such as XLPE (i.e. low density polyethylene, Col 4, lines 19-25), a second layer (3) comprising a cellular expansion polymer (i.e. XLPE) on the first layer (2, Col 5, lines 15-25), wherein the cellular expansion polymer is a low dielectric coefficient polymer (i.e. XLPE, Col 5, lines 15-25) and a third layer (4) comprising a reinforcement layer on the second layer (3, Col 5, lines 15-25), wherein the first layer and the third layer (2 & 4) may comprise a material such as (i.e. XLPE, low density polyethylene, Col 4, lines 19-25), which have the same characteristics (i.e. the first and third layer may be the same material XLPE), a second external conductor

(6) surrounding the dielectric element (4) consisting of a water penetration protective element (i.e. swellable tape, Col 6, lines 1-7) capable of keeping the cable dry (Col 1, lines 5-16), wherein the water penetration protective element (5d) may comprise plurality of swellable fibers (5 & 5d as shown in Fig 8) made of polyester fibers (Col 3, lines 64-67), and a protective cover (7) that may be made of low, medium, or high density polyethylene (Col 5, lines 37-40). With respect to claim 69, Chan disclose that the metal core conductor (1) may be made of copper or aluminum (Col 5, lines 11-13). With respect to claim 71, Chan discloses that the second polyethylene layer (3) is applied onto the core conductor (1) and is capable of showing better watertightness and improving superficial appearance (Fig 8). With respect to claim 72, Chan discloses that the second external conductor (6) may be made of copper and aluminum (Col 5, lines 28-30). With respect to claim 73, Chan discloses that the water penetration protective element (5d) may comprise water swellable tape, placed helically around the second external conductor (5, Fig 8). With respect to claim 74, Chan discloses that the water penetration protective element (5a) has an absorption speed (Col 4, lines 14-18). With respect to claim 75, Chan teaches that the protective cover (7) may be made of low, medium, or high density polyethylene (Col 5, lines 37-40).

However, Chan doesn't necessarily disclose the first layer comprising an adhesive wherein the adhesive is selected from the group consisting of vinyl adhesive, acrylic adhesive, and combination thereof (claim 68), nor the adhesive being selected from the group consisting of ethylene acrylate acid, ethylene vinyl acid, and

combinations thereof (claim 70), nor the absorption speed being 15ml/g per minute and absorption capacity of more than 30ml/g (claim 74).

Goehlich teaches a cable (Figs 1-4) comprising a cable core being surrounded by a plurality of insulating layers which overcomes the shortcoming of the prior art cables by preventing water intrusion resulting from a damage outer sheath to travel longitudinally thereby eliminating the possibility of the internal components (Col 1, lines 1-6 & 28-37). Specifically, with respect to claim 68 and 70, Goehlich teaches a cable (Fig 1) comprising a cable core (1), which is surrounded by a plurality of insulation layers (5a & 5b), wherein the insulation layers (5a & 5b) are formed as thin film layers (Col 7, lines 22-34), and comprise an adhesive component (Col 5, lines 8-20), which may be selected from acrylic adhesive (Col 5, lines 8-20).

With respect to claims 68, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the insulation layers of Chan to comprise the acrylic adhesive component configuration as taught by Goehlich because Goehlich teaches that such a configuration overcomes the shortcoming of the prior art cables by preventing water intrusion resulting from a damage outer sheath to travel longitudinally thereby eliminating the possibility of the internal components (Col 1, lines 1-6 & 28-37).

With respect to claim 70, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the acrylic adhesive of Modified Chan to be made of ethylene acrylate acid, since it is known that ethylene acrylate acid (ie EAA) is commonly utilized in the cable art for bonding layers of the cable together

and preventing water migration against the components which are bonded by such and since it has been held to be within general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416.

With respect to claim 74, it would have been obvious to one having ordinary skill in the art at the time the invention was made to the cable of modified Chan to comprise the absorption speed being 15ml/g per minute and absorption capacity of more than 30ml/g, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233.*

Modified Chan doesn't necessarily disclose the second layer comprising a swelling agent, wherein the swelling agent being selected from the group consisting of azodicarbonamide, p-toluene, sulphonyl hydrazide, 5-phynyl tetrazol and combinations, thereof, nor the second external conductor being a tape made of aluminum or copper alloy (claim 68), nor the diameter of the second layer being 13.0mm $\pm$ 0.10mm (claim 71), nor the outer conductor being a material formed as a cylindrical pipe which can be longitudinally welded, extruded, or the edges overlapped having an external conductor thickness of at least 0.34mm and a diameter of 13.7mm $\pm$ 0.10mm (claim 72), nor the diameter of the protective cover being 15.5mm $\pm$ 0.10mm with about 0.67mm $\pm$ 0.02mm thickness (claim 75).

Belli teaches a cable (Fig 1) comprising a cable core which overcomes the shortcomings of the prior art cables by effectively addressing both the problem of

avoiding penetration and propagation of moisture and/or water inside the cable core, the problem of possible deformations or breakages of the metallic shield due to cable thermal cycles, while maintaining a proper electrical contact between the metal shield and the cable core (Cols 2-3, lines 65-68 & 1-4). Specifically, with respect to claim 68, Belli teaches a cable (Fig 1) comprising a cable core (1), a plurality of insulation layers (2-4), a second external conductor layer in the form of a metallic shielding layer (6), which is made of aluminum or copper (Col 4, lines 56-60), and an outer jacket layer (7), wherein the second insulation layer (3) may contain an expanding agent (Col 7, lines 1-4), wherein the swelling agent which may be azodicarbonamide, or p-toluene, sulphonyl hydrazide (Col 7, lines 5-10). With respect to claim 71, Belli teaches that the diameter of the insulation layers may be greater than 14mm (ie the conductor is 14mm, so the insulation surrounding it has to have a diameter greater than 14mm, Col 9, line 54). With respect to claim 72, Belli teaches that the outer conductor (6) may be a material formed as a cylindrical pipe (i.e. metallic tube) which can be longitudinally welded or the edges overlapped Col 4, lines 55-60), wherein the shield (6) may have an external conductor thickness of at least 0.2mm and a diameter of greater than 14.2mm (ie the conductor is 14mm, so the insulation surrounding it has to have a diameter greater than 14mm, Col 10, lines 12-15). With respect to claim 75, Belli teaches that the cable (Fig 1) has a diameter greater than 14mm (ie the conductor is 14mm, so the insulation surrounding it has to have a diameter greater than 1, Fig 2).

With respect to claims 68 and 71-72, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable

of modified Chan to comprise a swellable agent and shield configuration as taught by Belli because Belli teaches that such a configuration overcomes the shortcomings of the prior art cables by effectively addressing both the problem of avoiding penetration and propagation of moisture and/or water inside the cable core, the problem of possible deformations or breakages of the metallic shield due to cable thermal cycles, while maintaining a proper electrical contact between the metal shield and the cable core (Cols 2-3, lines 65-68 & 1-4).

With respect to claims 71-72 and 74, it would have been obvious to one having ordinary skill in the art at the time the invention was made to the cable of modified Chan to comprise the diameter of the second layer to be 13.0mm $\pm$ 0.10mm, the outer conductor to have an thickness of at least 0.34 mm and a diameter of 13.7mm $\pm$ 0.10mm and the protective cover to have an thickness 15.5 mm $\pm$ 0.10 mm with about 0.67mm $\pm$ 0.02 mm, since it has been held that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233.*

(10) Response to Argument

Applicant's arguments filed December 28, 2009 have been fully considered but they are not persuasive. Specifically, the applicant argues the following:

A) The rejection of claims under 35 USC 112 as being indefinite should be reversed because the specification disclosure shows the claim limitations are definite.

B) The rejection of claims under 35 USC 103(a) should be reversed because there are no references in the prior art that taken individually or together disclose all of the elements of the present invention, motivate or suggest the present invention or provide a reasonable expectation of success.

C) The examiner has incorrectly interpreted the claim language of the presently claimed invention by ignoring the fact that the Appellants have amended the transitional phrase of claim 68 to closed end language "consisting of" while the cited prior art references use transitional phrases "comprising" and "having" which is open-ended and inclusive.

D) The Chan reference cannot be utilized in a 35 USC 103(a) rejection because it contains the CN wires were are not claimed and therefore cannot render the claim obvious based on the closed end claimed language (i.e. consisting of) and therefore the examiner has failed to establish a proper prima facie case of obviousness, because there are no references in the prior art that taken individually or together disclose all of the elements of the present invention, motivate, or suggest the present invention or provide reasonable expectation of success.

E) A person of ordinary skill in the art (POSA) familiar with the problems of water penetration in cables understands that "plurality of CN wires" are not equivalent to or could not be incorporated or substituted for the external conductors of the present invention because the present of consisting of did not allow for the presence of CN wires.

F) The shield layer of Chan requires cross-linked polyethylene (XLPE) and not low density polyethylene and therefore doesn't disclose all of the claimed invention as claimed.

G) Chan teaches away from using polyester material as a water protection element, such as a tape layer, but rather teaches water swellable yarns and fibers and therefore doesn't teach all of the claimed elements.

H) There is no motivation or suggestion in the prior art to combine the Chan and Goehlich references to arrive at the presently claimed invention because one would not have been able to do so with a reasonable expectation that the cable of Chan will function effectively without significantly affecting the other components contained therein.

I) One of ordinary skill in the art would not be motivated to pick and choose the claimed element out of an infinite list of structured materials as discloses by Goehlich.

J) Of the infinite list of structured materials, Goehlich doesn't mention ethylene acrylate acid as being an adhesive.

K) Belli teaches away from the claimed invention and therefore fails to provide a proper motivation for combining with modified Chan because it teaches utilizing swelling agents without the use of filler.

L) One of ordinary skill in the art would not be motivated to pick and choose the claimed element out of an infinite list of possible materials as disclosed by Belli.

M) There is no motivation or suggestion in the prior art to combine the Chan, Goehlich, and Belli references to arrive at the presently claimed invention.

N) The cited art fails to provide a proper motivation or suggestion because the invention contains elements nowhere found or suggested in the prior art.

O) The cited art fails to address the problem with which the presently claimed invention is concerned.

P) The examiner has engaged in improper hindsight, specifically, improperly utilized the Appellant's own teaching to construct the obviousness rejection.

Q) It is submitted that Belli doesn't teach the outer conductor being made from a material formed as a cylinder pipe which can be longitudinally welded or edges overlapped, wherein the shield has a thickness of 0.34mm and a diameter that is 13.0+0.10mm.

R) None of the cited reference disclose the conductor having a cross section of 3.15±0.03 mm in diameter (claim 69), nor the second film layer having a diameter of 13.0±0.10mm (claim 71), nor the external conductor having a conductor thickness of 0.34 and a diameter of 13.7±0.10mm (claim 72), nor the adsorption speed and capacity being >15ml/g per min and over 30ml/g (claim 74), nor the external cover diameter being 15.5±0.10mm with a 0.67mm±0.02 thickness (claim 75).

S) Hughley is also open-ended and doesn't disclose any of the layers of materials as claimed and therefore doesn't remedy the defects of the previously cited references.

With respect to argument A, the examiner respectfully submits that this rejection is moot as the claims were objected to rather than rejected, which is not appealable.

With respect to argument B-E, the examiner respectfully traverses. Firstly, it must be stated that the rejection of the present claims is a 35 USC 103(a) rejection and not a 35 USC 102(b) rejection. Clearly, the fact that the prior art references utilize open ended language such as “comprising” and ‘having”, doesn’t preclude the ability to utilize the references in 35 USC 103(a) rejection. Secondly, the fact that the appellant utilizes closed in language doesn’t preclude the ability to reject the claims under a 35 USC 103(a) rejection. Specifically, just because the appellant has utilize closed end language in the claims, doesn’t exempt the claims from what one of ordinary skill in the art would consider to be obvious based on the teachings of the prior art references.

The examiner would also respectfully state, that the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

In this case, it is well documented in art of cables and the prior art themselves, that power and electrical cables having an external shields (ie conductors) suffer from the problem of water migration resulting in the external conductor not performing the duty, for which it is commonly utilized in the art of cables, which is providing a ground for the cable itself. Chan clearly states that in the Background Section of the reference. Chan clearly states that the CN wires are utilized as a metallic shield for the purpose of providing a ground for the cable and that migration of water is a concern. In the art of cables, the term "CN wires", is short for Concentric Neutral wires. Neutral wires provide a ground for the cable. As clearly stated by Chan below:

POWER CABLE WITH LONGITUDINAL WATERBLOCK ELEMENTS

BACKGROUND OF THE INVENTION

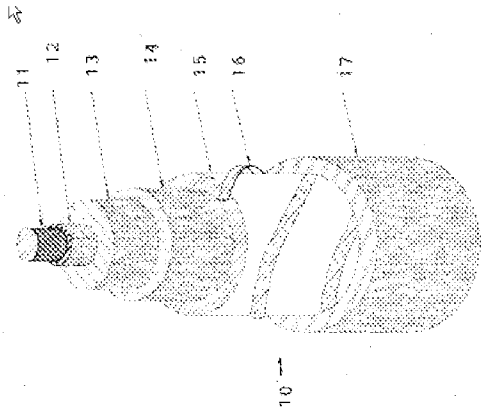
This invention relates to electrical power cables which have concentric neutral wires (CN wires) applied helically over the cable core as a metallic ground shield which is then covered by a protective polymeric jacket. More particularly, the invention relates to an improved protection against migration of water in such power cables by providing suitable continuous, elongated water swellable elements, such as yarns, filaments, strands or strips in contact with the CN wires and so disposed in relation to said CN wires as to block the passage of water within the cable in the longitudinal direction.

Chan also states that utilizing CN wires as a metallic shield as known in the art for performing the grounding of the cable. Specifically, Chan states

shield is applied. The preferred metallic shield, particularly for medium voltage underground distribution cables, consists of CN wires applied helically over the cable core and over which an overall polymeric jacket is extruded to provide protection against radial moisture ingress into the insulation. The grounded metallic shield serves the following functions: (a) to provide a neutral current return path and to ensure that the outside surface of the cable insulation is at ground potential; and (b) to provide a preferred path to ground for any fault currents and to ensure tripping of protective devices.

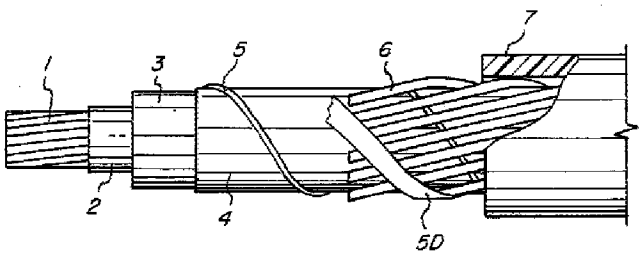
In light of the above, clearly the CN wires utilized in Chan are for the purpose of providing a metallic grounding shield.

Therefore, a known element of a prior art reference may be replaced with an equivalent element, were proper motivation is taught. Below is a detailed explanation of the structure without specific types and materials detailing Figure 1 of the claimed invention



The applicant claims: a cable (10) consisting of a metal core conductor (11), a dielectric element having three individual layers (12-14), a second conductor element (ie shield, 15), one or more water penetration elements (16) and a jacket (17). The applicant's claimed invention has six elements (11-17).

Below is a detailed explanation of the structure without specific types and materials detailing Figure 1 of the Chan reference



The prior art teaches: a cable (Fig 8) consisting of a metal core conductor (1), a dielectric element having three individual layers (2-4), a second conductor element (6), one or more water penetration elements (5 & 5d) and a jacket (7). While the Chan references teaches seven elements, clearly as claimed by the applicant there may be more than one water penetration element, which Chan illustrates by (5 & 5d). Therefore Chan teaches each of the claimed elements, with no additional elements thereby meeting the closed end language of "consisting of".

While the examiner admits that the second external conductive layer (i.e. metal shield) comprises CN wires helically wound as opposed to a metal film layer as claimed, it is well documented and known in the art that the second external shielding layer utilized in the art may be a metallic film layer, metallic laminated resin film, helically wound wires, parallel placed wires, braided metallic wires, corrugated metallic layer, etc, all of which provide the overall purpose of an external shielding layer (ie external conducting layer), which is the provide a neutral grounding path for the cable.

However, Belli has been relied upon for teaching of a cable (Fig 1) comprising a cable core which overcomes the shortcomings of the prior art cables by effectively

addressing both the problem of avoiding penetration and propagation of moisture and/or water inside the cable core, the problem of possible deformations or breakages of the metallic shield due to cable thermal cycles, while maintaining a proper electrical contact between the metal shield and the cable core (Cols 2-3, lines 65-68 & 1-4). Specifically, with respect to claim 68, Belli teaches a cable (Fig 1) comprising a cable core (1), a plurality of insulation layers (2-4), a second external conductor layer in the form of a metallic shielding layer (6), which is made of aluminum or copper (Col 4, lines 56-60), and an outer jacket layer (7).

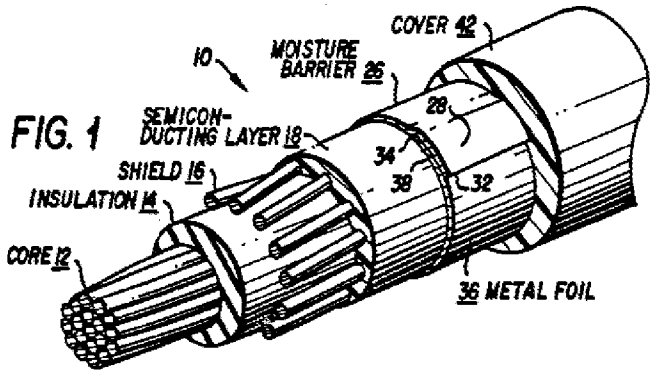
Clearly, Belli also teaches a power cable having an external conductor (ie external shield layer) in the form of a metallic foil layer, wherein the overall purpose is to provide the cable with protection from the migration of water. Belli teaches that in providing the protection, the power cable utilizing a second insulation layer (3) may contain an expanding agent (Col 7, lines 1-4), wherein the swelling agent which may be azodicarbonamide, or p-toluene, sulphonyl hydrazide (Col 7, lines 5-10).

Based on the teaching of Belli, it is the examiner's opinion, that it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of modified Chan to comprise a shield configuration as taught by Belli because Belli teaches that such a configuration overcomes the shortcomings of the prior art cables by effectively addressing both the problem of avoiding penetration and propagation of moisture and/or water inside the cable core and the problem of possible deformations or breakages of the metallic shield due to cable

thermal cycles, while maintaining a proper electrical contact between the metal shield and the cable core (Cols 2-3, lines 65-68 & 1-4).

Therefore, while the applicant has claimed the "consisting of" language, clearly the CN wires are known in the art to be a second external conductor and it is well documented and known in the art that the second external shielding layer utilized in the art may be a metallic film layer, metallic laminated resin film, helically wound wires, parallel placed wires, braided metallic wires, corrugated metallic layer, etc, all of which provide the overall purpose of an external shielding layer (ie external conducting layer), which is the provide a neutral grounding path for the cable.

As a matter of reference, to support the assertion stated above, examiner directs attention to Hughley (Pat Num 5,043,538), which teaches a power cable illustrating a second external conductor layer (16) being helically wound wires (ie CN wires, as Chan does).



However, while Hughley illustrates the second external conductor (ie shield layer, 16) being helically wound around the conductor core (12), Hughey also states in Col 4, lines

46-48, that the shield layer may be any configuration known in the art. Specifically, Hughley states

> In single or multiple conductor configurations, a conductive shield encircles the main layer of insulation 14. This shield may comprise a layer of conducting shield wires 16 as shown or a braided shield or an enclosing metal sheet, screen, or foil shield may be used.

Based on the evidence presented, it is clear that both Chan and Belli disclose a power cable, both of which are concerned with the migration of water and disclose various known and patentable methods and configurations of dealing with the issue of water migration. Therefore, there clearly exist a motivation for modifying Chan based on the teaches of Belli, there clearly exist an expectation of success based on the fact that both are power cables, both are concerned with the migration of water, and such a modification is well documented and known in the art as disclosed by the prior art references Chan, Belli, and the for reference only Hughley Patent.

With respect to argument F, the examiner respectfully traverses. The applicant is correct in stating that Chan discloses cross linked polyethylene (XLPE) material for the first and third insulating layers. However, as known in the art of cables (see wikipedia.com) and noted by the appellant, XLPE has a density of 0.93g/cc. It is known in the art that polyethylenes having a density between 0.91-0.94 are considered to be low density polyethylenes. Clearly, XLPE is a polyethylene having a low density. The examiner is required to give the claims the broadest reasonable interpretation. Specifically, MPEP 2111 states:

> During patent examination, the pending claims must be "given *>their< broadest reasonable interpretation consistent with the specification." > In re Hyatt, 211 F.3d 1367, 1372, 54 USPQ2d 1664, 1667 (Fed. Cir. 2000).< Applicant always has the opportunity to amend the claims during prosecution, and broad interpretation by the examiner reduces the possibility that the claim, once issued, will be interpreted more broadly than is justified. In re Prater, 415 F.2d 1393, 1404-05, 162 USPQ 541, 550-51 (CCPA 1969).

In light of the above comments, it is respectfully submitted that Chan discloses a low density polyethylene, since XLPE is a polyethylene having density of 0.93, which in the art of cables is a low density.

With respect to argument G, the examiner respectfully traverses. Clearly, Chan teaches utilizing a second external conductor (6) surrounding the dielectric element (4) consisting of a water penetration protective element (i.e. swellable tape, 5 & 5d, Col 6, lines 1-7) capable of keeping the cable dry (Col 1, lines 5-16), wherein the water penetration protective element (5d) may comprise plurality of swellable fibers (5 & 5d as shown in Fig 8) made of polyester fibers (Col 3, lines 64-67). Therefore, Chan clearly teaches utilizing polyester fibers as a means for providing a water swellable mechanism.

With respect to argument H, it has been held that one cannot show nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA

1981); *In re Merck & Co.,* 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986). Clearly, the examiner has conceded that Chan doesn't disclose the first layer comprising an adhesive, specifically, an adhesive being selected from the group consisting of vinyl adhesive, acrylic adhesive, and combination thereof or ethylene acrylate acid, ethylene vinyl acid, and combinations thereof having an absorption speed being 15ml/g per minute and absorption capacity of more than 30ml/g. The examiner also recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, Goehlich teaches a cable (Figs 1-4) comprising a cable core being surrounded by a plurality of insulating layers which overcomes the shortcoming of the prior art cables by preventing water intrusion resulting from a damage outer sheath to travel longitudinally thereby eliminating the possibility of the internal components (Col 1, lines 1-6 & 28-37). Based on the teaching of Goehlich, there clearly exists a motivation to modify Chan with the adhesives of Goehlich, since Chan is also concerned with preventing against the migration of water (Col 1, lines 5-16). Thirdly, all of the claimed subject matter is disclosed in the combination of Chan and Goehlich. As explained above, there clearly exist a motivation to combine the teaching of Chan and Goehlich as detailed above, because both are analogous art (data cables) and are concerned with the same problem solving area (prevention of water migration).

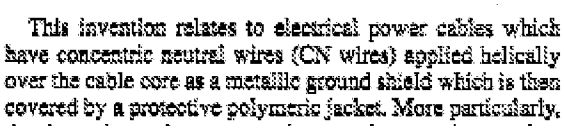
Secondly, there exists a reasonable amount of expectation of success, since they both are data cable concerned with prevention of water migration. Thirdly, all of the claimed limitations are taught in the combination of the reference, and therefore a proper prima facie case of obviousness has been established.

The appellant also argues that none of the patents cited are analogous art, as an argument for supporting argument H. The examiner respectfully traverses this argument also. The MPEP is clear what constitutes analogous art. Specifically, the MPEP 2141.01 states:

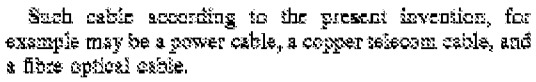
TO RELY ON A REFERENCE UNDER 35 U.S.C. 103, IT MUST BE ANALOGOUS PRIOR ART

The examiner must determine what is "analogous prior art" for the purpose of analyzing the obviousness of the subject matter at issue. "In order to rely on a reference as a basis for rejection of an applicant's invention, the reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the inventor was concerned." In re Oetiker, 977 F.2d 1443, 1446, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992). See also In re Deminski, 796 F.2d 436, 230 USPQ 313 (Fed. Cir. 1986); In re Clay, 966 F.2d 656, 659, 23 USPQ2d 1058, 1060-61 (Fed. Cir. 1992) ("A reference is reasonably pertinent if, even though it may be in a different field from that of the inventor's endeavor, it is one which, because of the matter with which it deals, logically would have commended itself to an inventor's attention in considering his problem."); Wang Laboratories Inc. v. Toshiba Corp., 993 F.2d 858, 26 USPQ2d 1767 (Fed. Cir. 1993); and State Contracting & Eng 'g Corp. v. Condotte America, Inc., 346 F.3d 1057, 1069, 68 USPQ2d 1481, 1490 (Fed. Cir. 2003) (where the general scope of a reference is outside the pertinent field of endeavor, the reference may be considered analogous art if subject matter disclosed therein is relevant to the particular problem with which the inventor is involved).

Clearly, all of the cited references disclose that the cable may be utilized as a power cables or communication cables, which is in the same field of endeavor as appellant's (see Appellant's Background of Invention section, Pages 1-2). Specifically, Chan discloses in Column 1, lines 5-8,

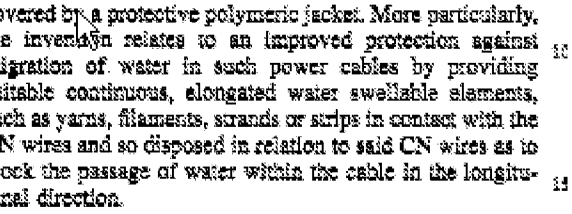

This invention relates to electrical power cables which have concentric neutral wires (CN wires) applied helically over the cable core as a metallic ground shield which is then covered by a protective polymeric jacket. More particularly,

Goehlich discloses in Column 3, lines 20-22,

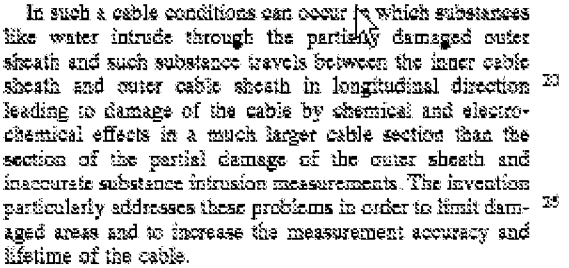

Such cable according to the present invention, for example may be a power cable, a copper telecom cable, and a fibre optical cable.

Secondly, all of the cited references are concerned with the same problem solving area as the appellant's which is to prevent the entry of water into the cable which can cause the cable to fail (see Appellant's Background of Invention section, Pages 1-2).

Specifically, Chan discloses in Column 1, lines 8-15,


covered by a protective polymeric jacket. More particularly, the invention relates to an improved protection against migration of water in such power cables by providing suitable continuous, elongated water swellable elements, such as yarns, filaments, strands or strips in contact with the CN wires and so disposed in relation to said CN wires as to block the passage of water within the cable in the longitudinal direction.

Goehlich discloses in Column 1, lines 18-27,


In such a cable conditions can occur in which substances like water intrude through the partially damaged outer sheath and such substance travels between the inner cable sheath and outer cable sheath in longitudinal direction leading to damage of the cable by chemical and electrochemical effects in a much larger cable section than the section of the partial damage of the outer sheath and inaccurate substance intrusion measurements. The invention particularly addresses these problems in order to limit damaged areas and to increase the measurement accuracy and lifetime of the cable.

To be considered analogous art only one of the two guidelines have to exist, however in this case both guidelines exist to establish that Chan and Goehlich are analogous art. In light of the above comments, the examiner willfully submits that the 35 USC 103(a) rejection is proper and just.

With respect to argument I & J, the examiner respectfully traverses. It has been well settled that a selection of some from among many indiscriminately from the prior art, including a selection from a list of thousands, is a matter of obviousness for one of ordinary skill in the art as along as the prior art teaches the suitability of the selections. In re Susi, 440 F. 2d 442, 445, 169 USPQ 423, 425 (CCPA 1971); In re Lemin, 332 F. 2d 839, 841, 141 USPQ 814, 815 (CCPA 1964). It is now axiomatic that it is not necessary for finding of obviousness under 35 USC 103(a) that all the elements or teachings of one reference be fully combined with those of another reference. In re Griver, 354 F.2d 377, 381, 148 USPQ 197, 200 (CCPA 1966): In re Billingsley, 279 F.2d 689, 691, 126 USPQ 370, 372 (CCPA 1960). Rather, the proper inquiry under 103 is what the references, taken collectively, would have suggested to one of ordinary skill in the art. In re Keller, 642 F.2d 413, 426, 208 USPQ 871, 882 (CCPA 1981). In this case, Goehlich teaches a cable (Figs 1-4) comprising a cable core being surrounded by a plurality of insulating layers which overcomes the shortcoming of the prior art cables by preventing water intrusion resulting from a damage outer sheath to travel longitudinally thereby eliminating the possibility of the internal components (Col 1, lines 1-6 & 28-37), wherein the cable (Fig 1) comprising a cable core (1), which is surrounded by a plurality

of insulation layers (5a & 5b), wherein the insulation layers (5a & 5b) are formed as thin film layers (Col 7, lines 22-34), and comprise an adhesive component (Col 5, lines 8-20), which may be selected from acrylic adhesive (Col 5, lines 8-20). As explained above. Based on the teaching of Goehlich, there clearly exists a motivation to modify Chan with an acrylic adhesive of Goehlich, since Chan is also concerned with preventing against the migration of water (Col 1, lines 5-16). While Goehlich doesn't mention specifically, ethylene acrylate acid, it is known in the art that EAA is a known type of acrylic adhesive it is known and commercially available for usage in the cable art for bonding layers of the cable together and preventing water migration against the components which are bonded by such and since it has been held to be within general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. In re Leshin, 125 USPQ 416. Specifically, as a matter of reference, Mildner (Pat Num 3,795,640), filed in the 1960's teaches utilizing EAA as a adhesive for usage in cables for providing tack between the layers of cables and providing prevention of water migration (see drawings below).

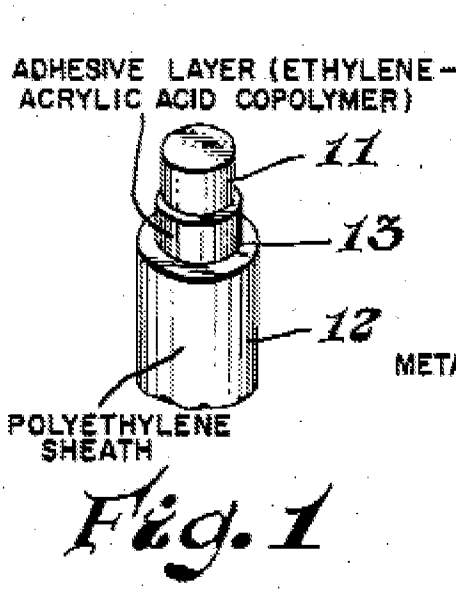


Fig. 1

Therefore, Goehlich clearly teaches utilizing an acrylic adhesive as explained above and clearly EAA is a common type of acrylic adhesive which is commercially available and known in the art for providing sufficient bonding between cable components thereby resulting in the prevention of water migration. In light of the above stated claim limitations, the examiner respectfully submits that the rejection of claims 68 & 70 are proper and just.

With respect to arguments K & R, the examiner respectfully traverses. It should be stated that modified Chan teaches all except the second layer comprising a swelling agent (claim 14), nor the swelling agent being selected from the group consisting of azodicarbonamide, p-toluene, sulphonyl hydrazide, 5-phynyl tetrazol and combinations, thereof (claim 15), nor the diameter of the second layer being 13.0mm $\pm$ 0.10mm (claim 21), nor the outer conductor being a material formed as a cylindrical pipe which can be longitudinally welded, extruded, or the edges overlapped having an external conductor

thickness of at least 0.34mm and a diameter of 13.7mm ± 0.10mm (claim 22), nor the diameter of the protective cover being 15.5mm ± 0.10mm with about 0.67mm ± 0.02mm thickness (claim 26), nor the cable comprising an antioxidants (claim 27). Belli is only relied on for it's teaching of utilizing a specific adhesive for providing a waterproof cable. Specifically, the examiner recognizes that Belli teaches the usage of filler materials, which is completely opposite of what the appellant is claiming. However, it has been held that patents are relevant for all they disclose. Specifically,

"The use of patents as references is not limited to what the patentees describe

as their own inventions or to the problems with which they are concerned. They are pad of the literature of the art, relevant for all they contain." In re Heck, 699 F.2d 1331 , 1332- 33, 216 USPQ 1038, 1039 (Fed. Cir. 1983) (quoting In re Lemelson, 397 F.2d 1006, 1009, 158 USPQ 275, 277 (CCPA 1968))."

The courts have been consistent that a reference may be relied upon for all that it would have reasonably suggested to one having ordinary skill the art, including non-preferred embodiments. See Merck & Co. v. Biocraft Laboratories, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989). See also Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361 , 47 USPQ2d 1516, 1522-23 (Fed. Cir. 1998) (The court held that the prior art anticipated the claims even though it taught away from the claimed invention. "The fact that a modem with a single carrier data signal is shown to be less than optimal does not vitiate the fact that it is disclosed").

In this case, Belli is only disclosed for it's telling of various materials known and being utilized in the cables, when preventing water penetration is an objective. Given the above stated guidelines, the examiner is proper to rely on Belli for it's teaching of

the various materials and the dimension of such layers and that the 35 USC 103(a) utilizing Belli is proper and just. Belli, also is analogous art. Specifically,

Belli discloses in Col 1, lines 12-15,

> The present invention relates to an electrical cable, in particular for medium- or high-voltage power transmission or distribution, having a semiconductive water-blocking expanded layer. In the present description, the term

Belli discloses in Col 1, lines 12-15,

> cable and the metal shield. Moreover, the presence of the water-swellable material dispersed into the expanded layer is able to effectivaly block moisture and/or water, thus avoiding the use of water-swellable tapes or of free water-swellable powders.

Based on the above comments, it would have been obvious to one having ordinary skill in the art of cables at the time the invention was made to modify the cable of modified Chan to comprise the a swellable agent and various insulation material configuration as taught by Belli because Belli teaches that such a configuration overcomes the shortcomings of the prior art cables by effectively addressing both the problem of avoiding penetration and propagation of moisture and/or water inside the cable core, the problem of possible deformations or breakages of the metallic shield due to cable thermal cycles, while maintaining a proper electrical contact between the metal shield and the cable core (Cols 2-3, lines 65-68 & 1-4). Secondly, while the specific dimensions of the cable components are not disclosed in Belli, clearly the ranges are generally close enough that discovering such a range would have been obvious to one of ordinary skill art. Specifically, the courts have been consistent that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233.* Based on the

above comments, the examiner respectfully submits that the rejection of claims 71-72 and 74 is proper and just.

With respect to argument L, the examiner respectfully traverses. It has been well settled that a selection of some from among many indiscriminately from the prior art, including a selection from a list of thousands, is a matter of obviousness for one of ordinary skill in the art as along as the prior art teaches the suitability of the selections. In re Susi, 440 F. 2d 442, 445, 169 USPQ 423, 425 (CCPA 1971); In re Lemin, 332 F. 2d 839, 841, 141 USPQ 814, 815 (CCPA 1964). It is now axiomatic that it is not necessary for finding of obviousness under 35 USC 103(a) that all the elements or teachings of one reference be fully combined with those of another reference. In re Griver, 354 F.2d 377, 381, 148 USPQ 197, 200 (CCPA 1966): In re Billingsley, 279 F.2d 689, 691, 126 USPQ 370, 372 (CCPA 1960). Rather, the proper inquiry under 103 is what the references, taken collectively, would have suggested to one of ordinary skill in the art. In re Keller, 642 F.2d 413, 426, 208 USPQ 871, 882 (CCPA 1981). In this case as explained above, Belli teaches a cable (Fig 1) comprising a cable core which overcomes the shortcomings of the prior art cables by effectively addressing both the problem of avoiding penetration and propagation of moisture and/or water inside the cable core, the problem of possible deformations or breakages of the metallic shield due to cable thermal cycles, while maintaining a proper electrical contact between the metal shield and the cable core (Cols 2-3, lines 65-68 & 1-4), wherein the cable (Fig 1) comprising a cable core (1), a plurality of insulation layers (2-4), a second external

conductor layer in the form of a metallic shielding layer (6), which is made of aluminum or copper (Col 4, lines 56-60), and an outer jacket layer (7), wherein the second insulation layer (3) may contain an expanding agent (Col 7, lines 1-4), wherein the swelling agent which may be azodicarbonamide, or p-toluene, sulphonyl hydrazide (Col 7, lines 5-10). Clearly, as explained above, there exist a motivation, based on the teaching of Belli, to modify the cable of modified Chan to comprise a swellable agent and shield configuration as taught by Belli because Belli teaches that such a configuration overcomes the shortcomings of the prior art cables by effectively addressing both the problem of avoiding penetration and propagation of moisture and/or water inside the cable core. The fact that Belli teaches a multitude of materials doesn't preclude the fact that he teaches utilizing the specific materials the appellant is claiming for the same exact problem solving area as the appellant. In light of the above stated comments, the examiner respectfully submits that the 35 USC 103(a) rejection utilizing Chan and Belli is proper and just.

With respect to arguments M-O, the examiner respectfully traverses. It has been established above, that there exist a proper motivation for combining the references. (see rebuttals to arguments B-L) and that the 35 USC 103(a) rejections are proper and just and that all claimed elements have been addressed. Secondly, it has also been established that the claimed invention and the prior art cited, all disclose the same problem solving area, which is to prevent water penetration into a cable. While the prior art may not disclose all of the problem solving areas of the appellant, it doesn't have to.

Specifically, it has been held that the fact that appellant has recognized another advantage which would flow naturally from following the suggestion of the prior art cannot be the basis for patentability when the differences would otherwise be obvious. See *Ex parte Obiaya*, 227 USPQ 58, 60 (Bd. Pat. App. & Inter. 1985). Therefore, the examiner willfully submits that the 35 USC 103(a) rejections are proper and just.

With respect to argument P, the examiner respectfully traverses. It must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the appellant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

With respect to argument Q & R, the examiner respectfully traverses. Belli clearly teaches a cable (Fig 1) comprising a cable core which overcomes the shortcomings of the prior art cables by effectively addressing both the problem of avoiding penetration and propagation of moisture and/or water inside the cable core, the problem of possible deformations or breakages of the metallic shield due to cable thermal cycles, while maintaining a proper electrical contact between the metal shield and the cable core (Cols 2-3, lines 65-68 & 1-4), wherein the outer conductor (6) may be a material formed as a cylindrical pipe (i.e. metallic tube) which can be longitudinally

welded or the edges overlapped and bonded by an adhesive (Col 4, lines 55-60), wherein the shield (6) may have an external conductor thickness of at least 0.2mm and a diameter of greater than 14.2mm (ie the conductor is 14mm, so the insulation surrounding it has to have a diameter greater than 14mm, Col 10, lines 12-15), wherein the cable (Fig 1) has a diameter greater than 14mm (ie the conductor is 14mm, so the insulation surrounding it has to have a diameter greater than 1, Fig 2). As stated above, while the specific dimensions of the cable components are not disclosed in Belli, clearly the ranges are generally close enough that discovering such a range would have been obvious to one of ordinary skill art. Specifically, the courts have been consistent that where the general conditions of a claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller, 105 USPQ 233.* Based on the above comments, the examiner respectfully submits that the rejection of claims 71-72 and 74 is proper and just.

With respect to argument S, the examiner respectfully submits that Hughley is just included as a reference to support what is known in the art of cables to those of ordinary skill in the art and that Hughley has not been utilized in any rejections.

(11) Related Proceeding(s) Appendix

Copies of the court or Board decision(s) identified in the Related Appeals and Interferences section of this examiner's answer are provided herein.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

/William H. Mayo III/

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